

SINGLE-FREQUENCY NARROW LINewidth 1 μ M FIBER LASER

ABSTRACT OF THE INVENTION

5 A compact single frequency, single-mode 1 μ m fiber laser with narrow linewidth (<10 kHz) and high output power (>2mW) is formed with an oxide-based multi-component glass fiber doped with triply ionized rare-earth ytterbium ions and fiber gratings formed in sections of passive silica fiber
10 and fused thereto. The multi-component glass supports higher doping concentrations than standard silica fiber, hence higher output power levels in short cavities. Formation of the gratings in passive silica fiber both facilitates splicing to other optical components and reduces
15 noise thus improving linewidth.